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RESEARCH ARTICLE

EVALUATION OF KNOWLEDGE, ATTITUDE, AND PRACTICE REGARDING DIARRHOEAL DISEASE AMONG RURAL COMMUNITY PEOPLE IN NORTHEAST THAILAND

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ABSTRACT

Diarrhoea is a major public health problem in the developing countries of Latin America, Africa, Asia, and parts of the Middle East, included Thailand. Prevention and control are need required. Therefore, this cross-sectional study aimed to assess the knowledge, attitude, and practice (KAP) regarding diarrhoeal disease among rural villagers in Nonghuawaen village, Kham Thale So district, Nakhon Ratchasima Province, Thailand. The 113 samples were purposive selected included head or represent of household, during January and April 2015. A predesigned KAP questionnaire was utilized to collect the data from them included socio-demographic characteristics, KAP. The results revealed that most of the represents, they were 26-35 years old, female, primary school, and agriculture. The self-reported prevalence of diarrhea was 16.8% during the last year prior to the survey. 67.30% of represents had received information regarding diarrhoeal disease. Of 44.2% represents had a fair level of knowledge regarding diarrhoeal disease, causes of disease, sign and symptom, and prevention and control ( $\bar{x}$ =10.1, S.D.=6.24). Of represents, 75.2% had a moderate attitude regarding diarrhoeal prevention and control ( $\bar{x}$ =2.21, S.D.=0.45). Of represents, 61.9% had a good practice regarding diarrhoeal prevention and control ( $\bar{x}$ =2.61, S.D.=0.49). Chi-square testing indicated that gender (female;  $X^2$ =1.02), age group (26-35 and 36-45 year old;  $X^2$ =1.01), education (Senior high school;  $X^2$ =1.24, High vocational certificate;  $X^2$ =1.22) and occupation (Government officer;  $X^2$ =1.31), were significantly associated with diarrhoeal disease ( $p$ -value<0.05). This finding shows a moderate knowledge, and fair attitude on diarrhoeal disease, therefore, health education is need required in this areas.

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INTRODUCTION

Diarrhoeais the condition of three or more loose or liquid stools per day, or as having more stools than is normal for that person, defined by the World Health Organization (WHO, 2013). Diarrhoea is the most common disease in developing countries, especially in tropical and sub-tropical areas of the world. It is estimated that 1.7 to 5 billion cases of diarrhoea occur per year, and total death cases are approximately 1.26 million in 2013. The majority of such cases occur in childhood and diarrhea occurring in Africa and Asia with 696 million and 1.2 billion cases respectively (WHO, 2013; Abdelmalak et al., 2013; Murray, 2015 and WHO, 2009). The most common cause is an infection of the intestines due to a virus, bacteria, or parasite, is often acquired from food or water

that has been contaminated by stool, or directly from another person who is infected (Abdelmalak and John,2013;Murray, 2015).While antibiotics are beneficial in certain types of acute diarrhea, in resource poor countries, treatment with antibiotics may be beneficial (Drydenet al., 1996; de Bruyn, 2008). However, some bacteria are developing antibiotic resistance, particularly *Shigella* (WHO, 2009). Antibiotics can also cause diarrhoea, and antibiotic-associated diarrhoea is the most common adverse effect of treatment with general antibiotics. Zince tablets are also recommended, in those with severe dehydration, intravenous fluids may be required (Abdelmalak, 2013). Prevention of infectious diarrhoea is by improved sanitation, hand washing with soap, and clean drinking water. Breastfeeding, at least six months, is also recommended as vaccination against rotavirus. Oral rehydration solution, which is clean water with modest amounts of salts and sugar, is the treatment of choice. Destination represents the single most

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important risk factor for developing traveler's diarrhea. High-risk regions include the developing countries of Latin America, Africa, Asia, and parts of the Middle East, which have reported attack rates for traveler's diarrhea ranging between 20 and 75%. Prevention of traveler's diarrhea falls into four broad categories: immunization, avoidance, non-pharmacological therapy, and antibiotic prophylaxis (Diemert, 2006).

Diarrhoea is a major public health problem in Thailand. Among the local Thai residents, the reported diarrhea rates had been slightly decreased over the past decade. The country crude morbidity rate of diarrhea per 100,000 persons in 2011, 2012, and 2013 was 2068.09, 1913.35, and 1,756.48. The country crude mortality rate of diarrhoea per 100,000 persons in 2011, 2012, 2013 was 0.09, 0.04, and 0.02, respectively. In Nakhon Ratchasima province, the morbidity rate of diarrhoea per 100,000 persons in 2011, 2012, 2013, was 1739.39, 1560.95, and 1509.18. The mortality rate in 2011, 2012, 2013, was 0.14, 0.11, and 0, respectively. The most common cause of disease in Thailand is the bacteria and parasite mainly *Aeromonashydrophila*, *A. veronii*, *A. caviae*, *Biovarsobria*, *Bacillus cereus*, *Escherichia coli*, *Plesiomonasshigelloides*, *Salmonella* group B, *Samonella* group G, *Shigellaspp.* *Vibrio parahemolyticus*, *V. furnissii*, *V. cholerae* non O1/non O139,

and *Giardia Lamblia* (Bureau of Epidemiology, 2011, 2012, 2013). This figure indicates that diarrhoeal disease is still a major problem in Thailand including Nakhon Ratchasima, therefore, prevention and control is need required especially the improvement of health education among rural community. Unfortunately, lack of data on the behaviour of villagers who habitat in our work areas, this cross-sectional study aimed to assess the knowledge, attitude, and practice (KAP) regarding to diarrhoeal prevention and control among rural villagers in Nonghuawaen village, Kham Thale So district, NakhonRatchasima Province, Thailand. This data may useful for further planning of health intervention.

### MATERIALS AND METHODS

#### Study areas and study design

This cross-sectional study was performed in Nonghuawaen village, Pandung sub-district, KhamThale So district, NakhonRatchasima Province, Northeast of Thailand. It is located in the northeast region where approximately 263 kilometres from Bangkok; capital of Thailand, and 32.7 kilometres from NakhonRatchasima province. This village is covered 3.344 kilometres<sup>2</sup>, 108 households, and has 454 populations (Figure 1).



Fig.1. Map of KhamThalae So district, NakhonRatchasima Province, Northeast, Thailand

## Population, sample size, and sampling

The 113 samples were purposive selected included represent of 108 households, a head of villages, and 4 public health volunteers from Nonghuawaen village, Kham Thale So district, NakhonRatchasima Province, Thailand during January and April 2015.

## Measurement and data collection

The routine prevention and control campaign for diarrhoeal disease had been used and given by the public health officers from the health promotion hospital of Pandung sub-district. A predesigned KAP questionnaire was utilized to collect the data from all villagers who were represents of household, village, and related this community. The questionnaire was comprised 5 domain included (1) demographic data; gender, age group, education, agriculture, (2) past history with diarrhoea and perception, (3) knowledge; 15 questions, (4) attitude; 15 questions, and (5) practice; 15 questions. Reliability and validity of questionnaire was analyzed, knowledge (Kruder-Richardson-20) = 0.85, attitude and practice (coefficient of Cronbach's alpha) = 0.92 and 0.76, respectively. One participant over 10 years of age, who had been living in the sub-district for at least 6 months, was purposive chosen within each household at the time of visiting by a research assistant. Necessary permission from the concerned authorities was taken and a survey was conducted using a predesigned KAP questionnaire. Prior informed consent was taken. For those not available in the first interview another visit was made to minimize non-response.

## Statistical analysis

Descriptive statistical data were analyzed with SPSS software for demographic data, information resources for diarrhoea, knowledge, attitude, and practice regarding diarrhoeal disease. Each questionnaire was analyzed and interpreted for their parts. Evaluation of knowledge level was calculated and analyzed according to Bloom *et al.* (1971), answer correct=1,

incorrect=0, and interpreted to high level; 11-15 point, fair level; 6-10 point, 0-5; low level. Evaluation of attitude and practice level was calculated and analyzed according to Best *et al.* (1997), attitude with 3 choice (agree, not sure, dis-agree): positive question=3,2,1, negative question=1,2,3, and interpreted to good level; 2.37-3.00 point, moderate level; 1.67-2.36 point, 1.00-1.66 point; low level, practice with 3 choice (frequently, sometimes, never): positive question=3,2,1, negative question=1,2,3, and interpreted to good level; 2.37-3.00 point, moderate level; 1.67-2.36 point, 1.00-1.66 point; poor level. Chi-square testing was used to analyze the association between demographic data and diarrhoeal disease.

## RESULTS

### Demographic data

The results revealed that 113 represents were 108 households, a head of villages, and 4 public health volunteers from Nonghuawaen village, Kham Thale So district, Nakhon Ratchasima Province, Thailand. Most of the represents, was female (84.1%), age group 26-35 years old (31.0%), and followed by age group 36-45 year old. The represents have an educational degree in the primary school level (57.5%), and they are agriculture (58.4%) (Table 1).

### Past history with diarrhoeal disease and their perception

The represents had completed the questionnaire. The self-reported prevalence of diarrhea was 16.8% during the last year prior to the survey. They had serviced in the health promotion hospital of Pandung sub-district, for their treatment with antibiotics and oral rehydration solution. The represents had received information regarding diarrhoeal disease prevention and control via public health officers, public health volunteers, about 67.3% represents had received in the information (Table 2).

**Table 1. Demographic data of represents from Nonghuawaen village, Kham ThaleSo district, Nakhon Ratchasima Province, Thailand**

Demographic data	No. of represents (n = 113)	%	Association with diarrhoeal prevention and control
Gender			
Male	18	15.9	
Female	95	84.1*	X <sup>2</sup> =1.02, P-value=0.04
Age			
≤25 year old	23	20.4	
26-35 year old	35	31.0*	X <sup>2</sup> =1.01, P-value=0.04
36-45 year old	31	27.4*	X <sup>2</sup> =1.01, P-value=0.04
46-55 year old	15	13.2	
>55 year old	9	8	
Education			
Primary school	65	57.5	
Junior high school	8	7.1	
Senior high school	27	23.9*	X <sup>2</sup> =1.24, P-value=0.03
High vocational certificate	13	11.5*	X <sup>2</sup> =1.22, P-value=0.03
Occupation			
Agriculture	66	58.4	
Employee	15	13.3	
Housewife	14	12.4	
Own business	14	12.4	
Government officer	4	3.5*	X <sup>2</sup> =1.31, P-value=0.03

Statistical significant p-value < 0.05

**Table 2. Past histories with diarrhoeal disease and perception among represents in Nonghuawaen village, Kham Thale So district, NakhonRatchasima Province, Thailand, by year 2014**

Past history	No. of represent	%
Diarrhoea		
Yes	19	16.8
No	94	83.2
Perception		
Yes	76	67.3
No	37	32.7

### Knowledge, attitude, and practice regarding diarrhea

Behaviour of participants was interviewed and completed computed. Knowledge, attitude, and practice had fair, moderate, and good level, respectively. All of data has been shown in Table 3. The most of represents, of 44.2% had a fair level of knowledge regarding diarrhoeal disease, causes of disease, sign and symptom, and prevention and control ( $\bar{x}=10.1$ , S.D.=6.24). The highest of score was found in the question of "Diarrhoeal disease caused by ingested contaminated food with bacteria, virus, and parasites" (corrected, 85.0%), and followed "Diarrhoeais the condition of three or more loose or liquid stools per day, or as having more stools than is normal for that person" (corrected, 80.5%), and "Lack of sanitation by defecated pass to water reservoir led to contaminated food" (corrected, 80.5%), respectively.

The lowest of scores was found in the question "Garbage disposal is prevented diarrhoeal disease and related vectors mainly rat and flies" (corrected, 63.7%), and followed "Diarrhoeal disease caused by ingested contaminated food and drinking water" (corrected, 64.6%), respectively. The most of represents, 75.2% had a moderate attitude regarding diarrhoeal prevention and control ( $\bar{x}=2.21$ , S.D.=0.45). The highest of score was found in the question of "Regularly, washing of dish, spoon, fork" (agree, 69.6%), and followed "Regularly, hygienic defecation" (agree, 69.0%), and "Regularly, consumed a cooked food" (agree, 53.1%), respectively. The lowest of scores was found in the question "Regularly, covering of food dish to prevent vectors" (agree, 35.5%), and followed "Regularly, drinking cleaned water" (agree, 37.2%), respectively.

The most of represents, of 61.9% had a good practice regarding diarrhoeal prevention and control ( $\bar{x}=2.61$ , S.D.=0.49). The highest of score was found in the question of "Cleaning of vegetable and fruit before eat" (72.6%), and followed "Regularly, hygienic and defecate sanitation" (frequently, 69.0%), and "Regularly, cooked food" (frequently, 69.0%), respectively. The lowest of scores was found in the question "Consumed under-cooked food mainly fresh fish, pork, beef, and sea food" (frequently, 68.2%), and followed "Covering of food dish to prevent vectors" (never, 14.2%), respectively. Chi-square testing indicated that gender (female;  $X^2=1.02$ ), age group (26-35 and 36-45 year old;  $X^2=1.01$ ), education (Senior high school;  $X^2=1.24$ , High vocational certificate;  $X^2=1.22$ ) and occupation (Government officer;  $X^2=1.31$ ), were significantly associated with diarrhoeal disease ( $p$ -value<0.05) (Table 1).

**Table 3. Knowledge, attitude, and practice regarding diarrhoea among represents from Nonghuawaen village, KhamthaleSo district, NakhonRatchasima Province, Thailand**

Behavior Level	No. of represents (n = 113)	%
Knowledge		
High	50	44.2
fair	61	54
Low	2	1.8
$\bar{x}=10.1$ , S.D.=6.24		
Attitude		
Good	26	23
moderate	85	75.2
Poor	2	1.8
$\bar{x}=2.21$ , S.D.=0.45		
Practice		
Good	70	61.9
Moderate	43	38.1
Poor	0	0
$\bar{x}=2.61$ , S.D.=0.49		

## DISCUSSION

Diarrhea is a leading cause of morbidity and mortality among people in low-income and middle-income countries. To date, there are no effective vaccinations against the various cause, therefore, decreasing the morbidity is the most fundamental and effective approach to minimize the impact of diarrhea. Risk factors have been identified in previous studies, including food contaminate, distance between the septic tank and well water, drink contaminate, household behaviors, restaurant sanitation, and environmental hygiene (de Wit *et al.*, 2003; Fewtrell *et al.*, 2005; Bentley, 1992; Sumner *et al.*, 2011; Stenberg *et al.*, 2008; Ozkan *et al.*, 2007 and Maet *et al.*, 2014). Diarrhea is still a major health problem in Thailand included local people and oversea traveler. Among the local Thai residents, the reported diarrhea rates had been slightly decreased over the past decade. The most common cause of disease in Thailand is the bacteria and parasites (Bureau of Epidemiology, 2011, 2012 and 2013). Here we have been reported the behavior regarding diarrhoeal disease among rural people in the northeast of Thailand.

This reported indicates that participants had a past history with diarrhoeal disease and 32.7% had no received information about diarrhoeal disease, prevention and control. In the past reported showed that growth of rural Bangladeshi children aged 6-35 months was examined in relation to the history of diarrhoea in 1772 3-month intervals. Weight gain and linear growth were lower in intervals with a history of diarrhoea than in intervals without diarrhoea. These findings suggest that the effect of diarrhoea on growth is transient and that efforts to control diarrhoea are unlikely to improve children's nutritional status in the long term (Briend *et al.*, 1989). This recent, the questionnaire with the past history of diarrhoeal occurred, useful for screening of risk people in rural community. The most of represents had a fair level of knowledge and moderate attitude regarding diarrhoeal disease, causes of disease, sign and symptom, and prevention and control. In addition, the lowest of scores was found in the question "Garbage disposal is prevented diarrhoeal disease and related vectors mainly rat and flies", and followed "Diarrhoeal disease caused by ingested contaminated food and drinking water. This result indicates that diarrhea can be increased

through their knowledge and attitude. A survey of knowledge, attitudes and practices of mothers in the rural communities of two villages in Sudan regarding diarrhoeal diseases in children was conducted using a focus group research technique. The study showed that mothers could define and describe diarrhoea, however awareness about the aetiology and the importance of germs in its causation was low. Less than 40% of mothers identify symptoms and signs of "dehydration" and the need for consultation. Only 10% could relate danger signs to severe dehydration (Ahmed *et al.*, 1994).

The most of represents had a good practice regarding diarrhoeal prevention and control. The highest of score was found in the question of "Cleaning of vegetable and fruit before eat", "hygienic and defecate sanitation" and "cooked food". This result can be significantly reduced diarrhoea through their good hygienic sanitation, similarly to the developed communities that improve hygiene knowledge and practices have been shown to be effective in the prevention of diarrhoea disease transmission in clinical settings (Maet *et al.*, 2014). However, the low practice in this community has been reported that villager had consuming under-cooked food mainly fresh fish, pork, beef, and seafood. All of under-cooked food are the main sources of bacteria, virus, and parasites, mainly seafood is a caused of *V. parahemolyticus* (Bureau of Epidemiology, 2011, 2012 and 2013), pork is a caused of *Taeniasolium*, *T.saginata*, and fresh fish (cyprinoid fish) is a caused of *Opisthorchisviverrini* (Kaewpitoon *et al.*, 2007). Therefore, local villager who favorites eat under-cooked has opportunity to infect that agents and occur diarrhoeal disease.

Gender (female), age group (26-35 and 36-45 year old), education (Senior high school, High vocational certificate) and occupation (Government officer), were significantly associated with diarrhoeal prevention and control. This result is similar to that the differences on the reported prevalence rates of diarrhea in different age groups, background of education and occupations groups among urban residents were statistically significant (Ma *et al.*, 2012) Moreover, level of maternal education, maternal hand washing with soap post-toilet, and use of a toilet with septic/canalization were found to be protective against recurrent diarrhoeal illnesses. Maternal education post primary school was associated with 21% lower risk, and hand washing with soap a 17% reduction (Aluisio *et al.*, 2015). Previously study found that age of mother, education level, occupation, income of family and experience about diarrhea disease were positively related to the pattern of belief in health and behavior of mother when her child had diarrhea disease (Jirajin, 1991). Therefore, female, education level, and occupation, are the key point to give them health education to reduce diarrhoeal disease.

## Conclusion

This finding shows a moderate knowledge and fair attitude regarding diarrhoeal disease, may be led to increasing the number of diarrhoeal disease. Current interventions are need required, may be improved with more active community partnership among the villagers, schools and the relevant social organizations, to raise awareness on the importance of

compliance to high knowledge and attitude, including hygiene practices regarding diarrhoeal prevention and control.

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